

INDOOR AIR QUALITY ASSESSMENT

**Fitchburg District Court
100 Elm Street
Fitchburg, Massachusetts**



Prepared by:
Massachusetts Department of Public Health
Bureau of Environmental Health Assessment
November, 2001

Background/Introduction

At the request of court employees and after consultation with Steve Carroll, Director of Court Facilities, an indoor air quality assessment was done at the Fitchburg District Court (FDC) at 100 Elm Street, Fitchburg, MA. The assessment was conducted by the Massachusetts Department of Public Health (MDPH), Bureau of Environmental Health Assessment (BEHA) and was prompted by reports of water damage to building materials and mold concerns as a result of flooding after several days of substantial rain during the weekend of Father's Day, June 17, 2001. Preliminary recommendations and other information concerning water damage and microbial growth were previously outlined in a letter (MDPH, 2001). This report will address general IAQ concerns.

On June 22, 2001, a visit was made to this building by Michael Feeney, Chief of Emergency Response/Indoor Air Quality (ER/IAQ), BEHA to conduct an indoor air quality assessment. The FDC is a two-story stone and cement building constructed in the early 1900s (see Picture 1), which previously served as a post office. The building was renovated in 1979 and converted into a courthouse. The basement was renovated in 1998 to contain the juvenile court and its related offices, as well as the lock up. The second floor houses the district attorney's office, police offices, courtroom C and other office space. The first floor contains the main courtroom, adult probation clerks office, judge's lobby, clerk's office, juvenile court office space, lock up control and other office space. Windows are openable.

The water damage to the courthouse was a result of a rainstorm that delivered an estimated 4 inches of rain within 20 minutes in North Worcester County on June 17, 2001

(Dupill, L.E., 2001). The rainstorm resulted in flooding reports in homes, businesses and other buildings over a 2-mile section of the downtown Fitchburg area (see Map 1). The court was previously flooded as a result of a dam break in April, 1987 which prompted emergency repairs to the building (FEMA, 1987). No other reports of catastrophic flooding of the building could be obtained.

Methods

Air tests for carbon dioxide, temperature and relative humidity were taken with the TSI, Q-Trak, IAQ Monitor, Model 8551. Moisture content of water damaged materials was measured using a Delmhorst, BD-2000 Model, Moisture Detector.

Results

The courthouse has an employee population of approximately 90 and an estimated 100-200 individuals visit the courthouse on a daily basis. The tests were taken under normal operating conditions. Test results appear in Tables 1-5.

Discussion

Ventilation

It can be seen from the tables that the carbon dioxide levels were above 800 parts per million (ppm) in forty of forty-six areas surveyed during the assessment, indicating inadequate air exchange in most areas sampled. It is important to note however, that a

number of areas were sparsely populated and/or windows and exterior doors were open during the assessment, which can greatly reduce carbon dioxide levels.

Ventilation is provided by a heating, ventilation and air conditioning (HVAC) system. Fresh air is introduced by a rooftop-mounted air-handling unit (AHU) and distributed through ducted, ceiling vents throughout the first and second floors. The basement contains an AHU that appears to draw fresh air from an intake located at ground level (see Picture 2). Fresh air is distributed to ground floor space by ceiling mounted fresh air diffusers connected to ductwork. The rooftop AHU had its fresh air intake louvers closed (see Pictures 3 and 4), which results in the constant recirculation of air on the first and second floors. The closing of the fresh air vent also results in the minimization of air exhausted from the AHU. As the return air louvers are restricted, air pressurizes the pre-louver chamber, which forces return air out a passive louver vent (see Picture 5). With the return air vent open 100 percent and the fresh air intake restricted, no positive air pressure is created and no air is exhausted from the AHU. Without dilution and removal by the HVAC system, environmental pollutants present inside the building can build up and be redistributed throughout the first and second floors.

The orientation of the AHU can produce conditions that allow for uncontrolled entrainment of cold air during winter months through the passive exhaust vent. The passive exhaust vents face east. New England is prone to winter storms with high northeast winds (Nor'Easters). As NE winds blow across the face of the rooftop AHU, this airflow can lift the edge of the passive vents and force air in an uncontrolled manner into the return air chamber. This is enhanced by lifting of the exhaust vent louvers when

return vent louvers restrict airflow. In the winter this can introduce cold air that may result in the AHU coils freezing.

To maximize air exchange, the BEHA recommends that both supply and exhaust ventilation operate continuously during periods of occupancy. In order to have proper ventilation with a mechanical supply and exhaust system, the systems must be balanced to provide an adequate amount of fresh air to the interior of a room while removing stale air from the room. Building staff reported that the system was balanced within the last year (2000). It is recommended that HVAC systems be re-balanced every five years to ensure adequate air systems function (SMACNA, 1994).

The Massachusetts Building Code requires a minimum ventilation rate of 20 cubic feet per minute (cfm) per occupant of fresh outside air or have openable windows in each room (SBBRS, 1997; BOCA, 1993). The ventilation must be on at all times that the room is occupied. Providing adequate fresh air ventilation with open windows and maintaining the temperature in the comfort range during the cold weather season is impractical. Mechanical ventilation is usually required to provide adequate fresh air ventilation.

Carbon dioxide is not a problem in and of itself. It is used as an indicator of the adequacy of the fresh air ventilation. As carbon dioxide levels rise, it indicates that the ventilating system is malfunctioning or the design occupancy of the room is being exceeded. When this happens a buildup of common indoor air pollutants can occur, leading to discomfort or health complaints. The Occupational Safety and Health Administration (OSHA) standard for carbon dioxide is 5,000 parts per million parts of air

(ppm). Workers may be exposed to this level for 40 hours/week, based on a time weighted average (OSHA, 1997).

The Department of Public Health uses a guideline of 800 ppm for publicly occupied buildings. A guideline of 600 ppm or less is preferred in schools due to the fact that the majority of occupants are young and considered to be a more sensitive population in the evaluation of environmental health status. Inadequate ventilation and/or elevated temperatures are major causes of complaints such as respiratory, eye, nose and throat irritation, lethargy and headaches.

Temperature readings ranged from 73° F to 79° F, most of which were within the BEHA recommended range for comfort. The BEHA recommends that indoor air temperatures be maintained in a range of 70° F to 78° F in order to provide for the comfort of building occupants. In many cases concerning indoor air quality, fluctuations of temperature in occupied spaces are typically experienced, even in a building with an adequate fresh air supply.

Relative humidity measurements ranged from 44 to 54 percent, which were within the BEHA recommended comfort range of 40 to 60 percent. Relative humidity levels in the building would be expected to drop during the winter months due to heating. The sensation of dryness and irritation is common in a low relative humidity environment. Low relative humidity is a very common problem during the heating season in the northeast part of the United States.

Microbial/Moisture Concerns

Recommendations concerning remediation of flooding in the basement offices were previously made to the Honorable Barbara Dortch-Okara (MDPH, 2001, Attachment A). The configuration of the building makes the rear walkway prone to flooding damage. The rear of the building has a walkway that slopes down from the street to a door that serves as the entrance for the cellblock (see Picture 6). The top of the walkway connects to a sidewalk that slopes from the rear of the building to the front (see Picture 7). With extreme heavy rain, water rushing down the sidewalk can be directed to accumulate in the sunken walkway. If the rate of water entering the walkway exceeds the drainage rate of the drains, the water level can rise and enter the cell block doors. According to building staff, rainwater entered the ground floor through this door.

Water damage to the ceiling in several areas on the north side of the building was noted. In one office water damage has eroded ceiling plaster from the lathe (see Picture 8). Water damage appears to correspond to an area of the roof that has damaged roof flashing (see Picture 9). An interior, paneled wall of the second floor courtroom was warped from water damage (see Picture 10). The water damage in one courtroom appeared to be below an abandoned pipe in the ceiling plenum (see Picture 11). Building officials reported that they have been working with a roofing contractor to try to isolate and repair the leak. Water-damaged ceiling tiles and other porous building materials can provide a source of microbial growth and should be repaired/replaced after a water leak is discovered.

Other Conditions

Several other conditions were noted during the assessment, which can affect indoor air quality. A number of areas had missing/damaged ceiling tiles. Missing/damaged ceiling tiles can provide pathways for the movement of drafts, dusts and particulate matter between rooms and floors.

Also of note were the amount of materials stored in some areas. In both offices and cubicle areas, items were seen piled on windowsills, tabletops, counters, bookcases and desks. The large amount of items stored provides a means for dusts, dirt and other potential respiratory irritants to accumulate. These stored items, (e.g., papers, folders, boxes, etc.) also make it difficult for custodial staff to clean. Dust can be irritating to the eyes, nose and respiratory tract.

The interior of the rooftop AHU was examined. AHUs are equipped with filters that strain particulates from airflow. Crushed filters and spaces between filters were noted within the unit, which results in unfiltered return air being redistributed into the office during AHU operation. In order to decrease aerosolized particulates, disposable filters with an increased dust spot efficiency can be installed. The dust spot efficiency is the ability of a filter to remove particulates of a certain diameter from air passing through the filter. Filters that have been determined by ASHRAE to meet its standard for a dust spot efficiency of a minimum of 40 percent would be sufficient to reduce airborne particulates (Thornburg, D., 2000; MEHRC, 1997; ASHRAE, 1992). Note that increased filtration can reduce airflow produced by the unit by increased resistance (called pressure drop). Prior to any increase of filtration, each AHU should be evaluated by a ventilation engineer to ascertain whether they can maintain function with more efficient filters.

Although the building staff have not reported a problem with pest infestation the potential for such problems exists. Food products and stacks of coffee cups were noted in an office (see Picture 12). Residue from coffee and associated products (e.g., cream and sugar) can attract pests as well as be a source of unpleasant odors. Insect parts can become dried out and aerosolized and may serve as a source of allergenic material for certain sensitive individuals.

Room 119 contained an ozone generating air purifier. At this time, the efficacy of ozone as an indoor air cleaner is being examined by several government agencies. While ozone may be effective in removing some odors of biological origin (such as skunk), its use as a universal air cleaner has come under question. (EPA, 1998). Ozone is a highly irritating substance to the respiratory system. Until more definitive information becomes available, the use of ozone generators in occupied areas should be done with caution.

Conclusions/Recommendations

In view of the findings at the time of the assessment, the following recommendations are made:

1. Complete corrective actions recommended in letter concerning flooding as soon as possible (see Appendix A).
2. To maximize air exchange, the BEHA recommends that both supply and exhaust ventilation operate continuously during periods of occupancy independent of thermostat control.

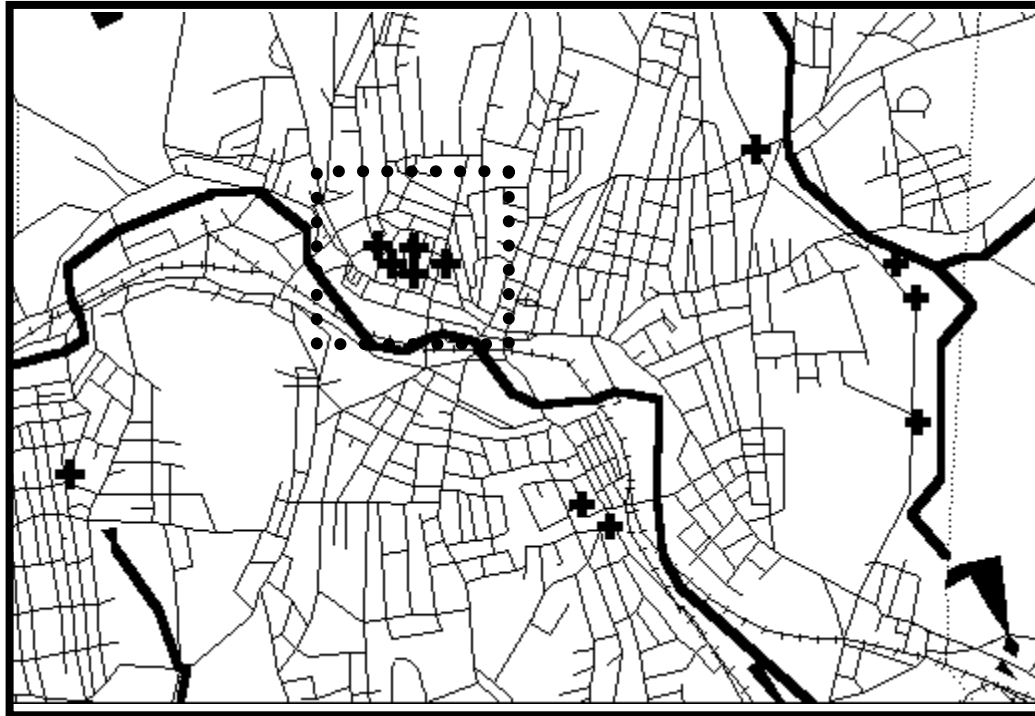
3. Consult a ventilation engineer to maximize the operation of the building's HVAC system. Have HVAC firm fully evaluate existing ductwork system for function to ensure proper distribution of fresh outside air to occupied areas.
4. Ensure filters fit flush in their racks with no spaces in between allowing bypass of unfiltered air into the unit. Obtain air filter brackets to prevent air-bypass if multiple filters are installed in one rack.
5. Repair roof/plumbing leaks and replace any remaining water-stained ceiling tiles and building materials. Examine the area above and around these areas for microbial growth. Disinfect areas of water leaks with an appropriate antimicrobial.
6. Once the roof/plumbing leaks are repaired, repair plaster and wall paneling in courtrooms.
7. For buildings in New England, periods of low relative humidity during the winter are often unavoidable. Therefore, scrupulous cleaning practices should be adopted to minimize common indoor air contaminants whose irritant effects can be enhanced when the relative humidity is low. To control for dusts, a HEPA filter equipped vacuum cleaner in conjunction with wet wiping of all surfaces is recommended. Drinking water during the day can help ease some symptoms associated with a dry environment (throat and sinus irritations).
8. Relocate or consider reducing the amount of materials stored to allow for more thorough cleaning. Clean items regularly with a wet cloth or sponge to prevent excessive dust build-up.

9. Replace missing ceiling tiles and fill utility holes and wall cracks to prevent the egress of dirt, dust and particulate matter between rooms and floors.
10. Consider discontinuing the use of ozone generators in the building. If use is continued, adequate ventilation should be utilized to prevent the build up of ozone within offices.
11. Consideration should be given to installing a raised section between the sidewalk and the stairs for the sunken walkway to serve as a barrier to runoff from the sidewalk/street.
12. Activities that can be used to prevent pest infestation may include the following:
 - Rinse out recycled food/beverage containers. Seal recycled containers with a tight fitting lid to prevent access of pests.
 - Remove non-food items that can attract pests.
 - Store foods in tight fitting containers.
 - Avoid eating in offices. In areas where food is consumed, periodic vacuuming to remove crumbs is recommended.
 - Regularly clean crumbs and other food residues from toasters, toaster ovens, microwave ovens and other food preparation equipment.

References

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Map 1
Downtown Fitchburg, MA Flooding



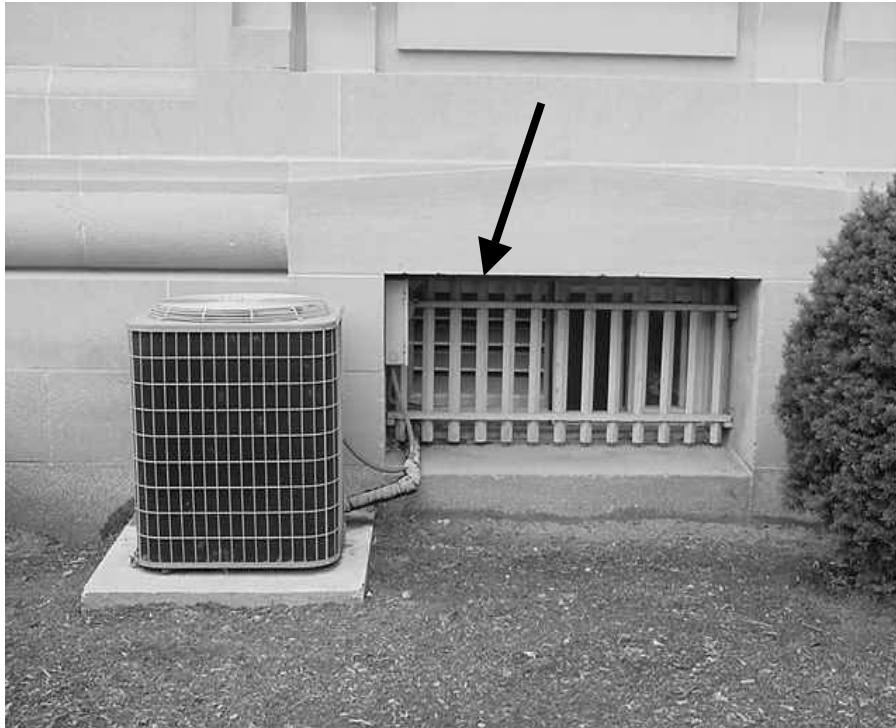
Fitchburg District Court located within dotted-line box
Darkened Lines are Waterways
Each cross represents reported flooded building
(Scale: 1 inch = 0.5 miles)

Picture 1



Fitchburg District Court

Picture 2



Basement AHU Fresh Air Intake Located at Ground Level

Picture 3



Rooftop AHU with Closed Fresh Air Intake Louvers

Picture 4



Rooftop AHU Had its Return Air Intake Louvers Open

Picture 5



Passive Louver Exhaust Vent of Rooftop AHU

Picture 6



Sunken Walkway at Rear of the Building

Picture 7



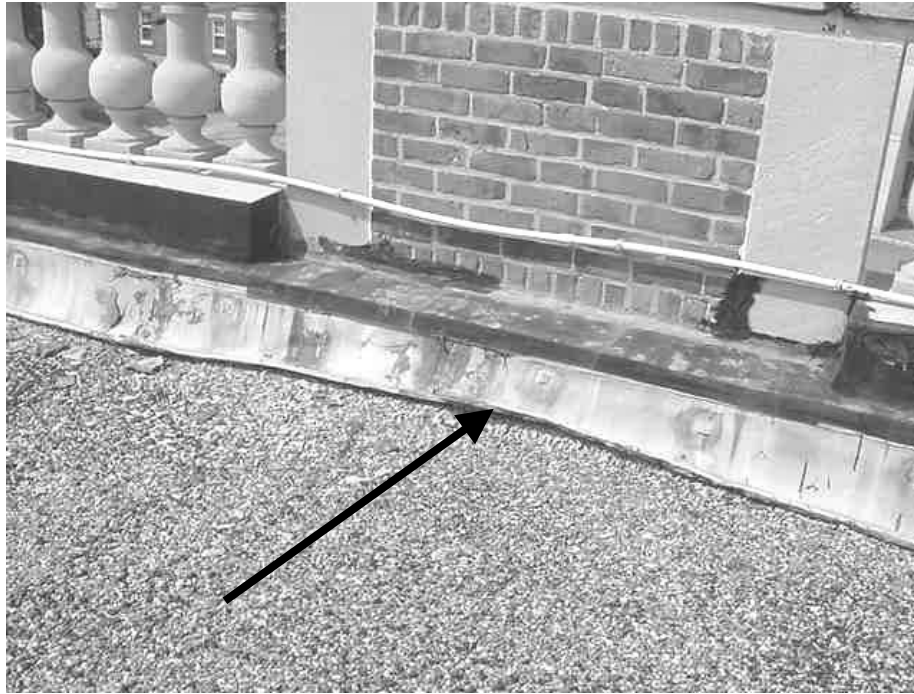
Sidewalk That Slopes Towards the Sunken Walkway at the Rear of the Building

Picture 8



Eroded Ceiling Plaster, Note Exposed Lathe

Picture 9



Lifted Roof Flashing above Water Damage on the Second Floor

Picture 10



Water Damaged Interior Wall Paneling of the Second Floor Courtroom

Picture 11



Abandoned Pipe in the Ceiling Plenum above Water Damaged Paneling

Picture 12



Stack of Used Coffee Cups in an Office

TABLE 1

Indoor Air Test Results – Fitchburg District Court, Fitchburg, MA – June 22, 2001

Location	Carbon Dioxide *ppm	Temp. °F	Relative Humidity %	Occupants in Room	Windows Openable	Ventilation		Remarks
						Intake	Exhaust	
Outside (Background)	506	74	67					
217 (outer)	1382	77	46	2	Yes	Yes	Yes	1 water damaged CT
217 (inner)	1302	77	45	2	Yes	Yes	Yes	Exhaust off, door open
DA/Police Office	1332	77	49	0	Yes	Yes	Yes	Supply off, door open
Restroom (2 nd floor)						No	Yes	Exhaust blocked by door
219	1257	77	45	2	Yes	Yes	Yes	2 water damaged CT
221	1300	76	45	1	Yes	Yes	Yes	Supply and exhaust off, plants
Courtroom C	1156	76	44	0	No	Yes	Yes	
222	1166	75	45	0	Yes	Yes	Yes	
220	1239	75	46	2	Yes	Yes	Yes	
223	1134	74	46	0	Yes	Yes	Yes	

* ppm = parts per million parts of air
CT = ceiling tiles

Comfort Guidelines

Carbon Dioxide - < 600 ppm = preferred
600 - 800 ppm = acceptable
> 800 ppm = indicative of ventilation problems
Temperature - 70 - 78 °F
Relative Humidity - 40 - 60%

TABLE 2

Indoor Air Test Results – Fitchburg District Court, Fitchburg, MA – June 22, 2001

Location	Carbon Dioxide *ppm	Temp. °F	Relative Humidity %	Occupants in Room	Windows Openable	Ventilation		Remarks
						Intake	Exhaust	
224	1130	73	46	0	Yes	Yes	Yes	
201	1168	74	49	1	Yes	Yes	Yes	Door open
203	1189	77	49	3	Yes	Yes	Yes	Supply and exhaust off
204	1164	75	46	0	Yes	Yes	Yes	Door open
205	1175	76	48	1	Yes	Yes	Yes	5 missing CT, 3 water damaged CT, water damaged paneling, door open
209	1127	76	45	0	Yes	Yes	Yes	1 water damaged CT, water damaged plaster, door open
208	1124	74	46	0	Yes	Yes	Yes	Door open
207	1111	74	46	0	Yes	Yes	Yes	Door open
210	1087	74	47	0	Yes	Yes	Yes	1 missing CT, door open
212	1204	74	47	0	Yes	Yes	Yes	

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TABLE 3

Indoor Air Test Results – Fitchburg District Court, Fitchburg, MA – June 22, 2001

Location	Carbon Dioxide *ppm	Temp. °F	Relative Humidity %	Occupants in Room	Windows Openable	Ventilation		Remarks
						Intake	Exhaust	
2 nd Floor Lobby	1691	75	51	50+	Yes	Yes	Yes	
C213	1121	75	51	0	No	Yes	Yes	
Advocate	1384	76	50	0	No	Yes	Yes	
C112	1166	76	47	0	No	No	No	Ventilation ducts disconnected
107	1112	75	46	0	Yes	Yes	Yes	Exhaust-blocked by door, door open
108	1133	75	46	0	Yes	Yes	Yes	Plant, door open
Clerk's Kitchen	1095	75	46	0	Yes	Yes	Yes	2 water damaged CT
Clerk's Office	1093	77	47	8	Yes	Yes	Yes	10 water damaged CT, candle ?
613	1109	78	47	3	Yes	Yes	No	Door open
Juvenile Clerk's Office	839	79	50	3	No	Yes	Yes	
Chief Court Officer's Office	652	79	51	0	No	Yes	Yes	Door open

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TABLE 4

Indoor Air Test Results – Fitchburg District Court, Fitchburg, MA – June 22, 2001

Location	Carbon Dioxide *ppm	Temp. °F	Relative Humidity %	Occupants in Room	Windows Openable	Ventilation		Remarks
						Intake	Exhaust	
Maintenance	834	79	50	1	Yes	Yes	Yes	Window open
Juvenile Probation – Main Office	772	78	52	6	Yes	Yes	Yes	Window open
Juvenile Judge's Lobby	735	77	54	1	Yes	Yes		Window open
Lock-up Control	1292	76	48	6	Yes	Yes	Yes	
1 st Floor Lobby	1112	75	49	6	Yes	Yes	Yes	
Adult Probation Clerk's Office	855	74	52	4	Yes	Yes	Yes	2 Water damaged CT
119	778	73	54	1	Yes	Yes	Yes	Window and door open, ozone, food containers
124	840	73	55	0	No	Yes	Yes	Door open
120	1073	73	49	0	Yes	Yes	Yes	Door open
121	777	73	56	0	Yes	Yes	Yes	Window and door open
122	694	72	58	1	Yes	Yes	Yes	Window and door open, soda bottles

* ppm = parts per million parts of air
CT = ceiling tiles

Comfort Guidelines

Carbon Dioxide - < 600 ppm = preferred
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Temperature - 70 - 78 °F
Relative Humidity - 40 - 60%

TABLE 5

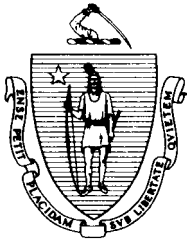
Indoor Air Test Results – Fitchburg District Court, Fitchburg, MA – June 22, 2001

Location	Carbon Dioxide *ppm	Temp. °F	Relative Humidity %	Occupants in Room	Windows Openable	Ventilation		Remarks
						Intake	Exhaust	
123	1074	72	51	0	Yes	Yes	Yes	1 water damaged CT, door open
101 – kitchen	1037	73	52	2	Yes	Yes	Yes	
Main Courtroom	1091	73	50	0	No	Yes	Yes	
103	1178	75	50	1	Yes	Yes	Yes	Supply and exhaust off, door open
103 – Judge's Lobby	1178	75	51		Yes	Yes	Yes	plants

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The Commonwealth of Massachusetts
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JANE SWIFT
GOVERNOR

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HOWARD K. KOH, MD, MPH
COMMISSIONER

July 12, 2001

The Honorable Barbara Dortch-Okara
Chief Justice for Administration and Management
Administration Office of the Trial Court
2 Center Plaza, 5th floor
Boston, MA 02108

Dear Judge Dortch-Okara:

In response to a request of court employees and after consultation with Steve Carroll, the Bureau of Environmental Health Assessment (BEHA) conducted an evaluation of the indoor air quality at the Fitchburg District Court, 100 Elm Street, Fitchburg, Massachusetts on June 22, 2001. Michael Feeney, Chief of Emergency Response/Indoor Air Quality (ER/IAQ), BEHA, conducted this inspection. Concerns about mold as a result of flooding in the basement from a rainstorm on June 17, 2001 prompted this request. Courthouse staff reported that rainwater accumulated to a depth of four to six inches throughout the basement floor. At this depth, lower drawers of file cabinets, storage shelves and materials in boxes on the floor became saturated with water. Wall-to-wall carpeting and lower levels of wall covering materials were also under water.

Substantial efforts to restore the basement to a workable environment were made by contractors as well as court facilities personnel. Exposed areas of carpet were also cleaned. Floor fans and dehumidifiers were in operation at the time of this assessment. While carpeting appears to be substantially dried out, the condition of water logged court records and gypsum wallboard remain possible problems. Substantial amounts of court records remained saturated for several days following the flood. Efforts were made by court staff to dry court records, however numerous documents remain moist (see Picture 1). If records remain moistened the likelihood of these documents serving as medium for mold growth increases with time.

According to court staff, the basement of the courthouse was renovated several years ago. Prefabricated gypsum wallboard was installed in many areas of the basement. Each prefabricated section is held in place with drywall screws. Each prefabricated piece consists of gypsum wallboard that is covered with wallpaper (see Picture 2). The wallpaper appears to be made of a water impermeable material. In order to assess whether the prefabricated wall covering had dried, moisture content of these materials was measured 4 inches above the floor

using a Delmhorst, BD-2000 Model, Moisture Detector. All prefabricated wall coverings were saturated with water (see Picture 3), indicating that efforts to dry this material are hindered by the wall covering. Water saturated gypsum wallboard can support mold growth if it remains moistened.

Steps should be taken to dry moistened court records. A decision should be made concerning the storage of mold contaminated materials. Boxes, documents, books and other moistened materials will become sources of mold particulates. In this case, dehumidification and ventilation alone cannot serve to reduce or eliminate mold growth in these materials. As an initial step, options concerning the preservation of materials stored in this area should be considered. Since many court records appear to be stored in this area, an evaluation concerning disposition of these materials must be made. Porous materials that are judged not worthy of preservation, restoration or transfer to another media (e.g., microfiche or computer scanning) should be discarded. Where stored materials are to be preserved, restored or otherwise handled, an evaluation should be done by a professional book/records conservator. This process can be rather expensive, and may be considered for conservation of irreplaceable documents that are colonized with mold. Due to the cost of records conservation, disposal or replacement of moldy materials may be the most economically feasible option.

In addition to moistened records, gypsum wallboard inside the juvenile court area should be examined and removed if found to contain mold. In order to avoid potential mold and related spore movement during remediation of the basement, the following recommendations should be implemented in order to reduce contaminant migration into occupied areas and to better understand the potential for mold to impact indoor air quality:

1. Use local exhaust ventilation and isolation techniques to control remediation pollutants. Precautions should be taken to avoid the re-entrainment of these materials into the building's HVAC system. The design of each system must be assessed to determine how it may be impacted by renovation activities. Specific HVAC protection requirements pertain to the return, central filtration and supply components of the ventilation system. This may entail shutting down systems (when possible) during periods of heavy construction and demolition, ensuring systems are isolated from contaminated environments, sealing ventilation openings with plastic and utilizing filters with a higher dust spot efficiency where needed (SMACNA, 1995).
2. Seal utility holes, spaces in roof decking and temporary walls to eliminate pollutant paths of migration.
3. Seal hallway doors with polyethylene plastic and duct tape. Consider creating an air lock of a second door inside the remediation spaces to reduce migration.
4. If possible, relocate susceptible persons and those with pre-existing medical conditions (e.g., hypersensitivity, asthma) away from the general areas of remediation until completion.
5. Establish communications between all parties involved with remediation efforts (including building occupants) to prevent potential IAQ problems. Develop a forum for

occupants to express concerns about remediation efforts as well as a program to resolve IAQ issues.

6. Develop a notification system for building occupants immediately adjacent to (and above) the basement record storage area to report remediation/construction/renovation related odors and/or dusts problems to the building administrator. Have these concerns relayed to the contractor in a manner that allows for a timely remediation of the problem.

7. When possible, schedule projects which produce large amounts of dusts, odors and emissions during unoccupied periods or periods of low occupancy.

8. Disseminate scheduling itinerary to all affected parties. This can be done in the form of meetings, newsletters or weekly bulletins.

9. Obtain Material Safety Data Sheets (MSDS) for all remediation/decontamination materials used during renovations and keep them in an area that is accessible to all individuals during periods of building operations as required by the Massachusetts Right-To-Know Act (MGL, 1983).

10. Consult MSDS' for any material applied to the effected area during renovation(s) including any sealant, carpet adhesive, tile mastic, flooring and/or roofing materials. Provide proper ventilation and allow sufficient curing time as per the manufacturer's instructions concerning these materials.

11. Implement prudent housekeeping and work site practices to minimize exposure to spores. This may include constructing barriers, sealing off areas, and temporarily relocating furniture and supplies. To control for dusts, a high efficiency particulate air filter (HEPA) equipped vacuum cleaner is recommended. Non porous materials (e.g., linoleum, cement, etc.) should be disinfected with an appropriate antimicrobial agent is recommended. Non-porous surfaces should also be cleaned with soap and water after disinfection.

We suggest that the majority of these steps be taken on any remediation/renovation project within a public building.

A full report denoting air testing conducted throughout the building will follow this letter. Please feel free to contact us at (617) 624-5757 if you are in need of further information or technical assistance.

Respectfully,

Suzanne K. Condon, Assistant Commissioner
Bureau of Environmental Health Assessment

cc/ Mike Feeney, Chief, Emergency Response/Indoor Air Quality
Lynne G. Reed, Executive Director, Administrative Office of the Trial Court
Stephen J. Carroll, Director of Court Facilities
Joanna Rugnetta, Health and Safety Liaison
Hon. Samuel E. Zoll, Chief Justice, District Court Department
Hon. Paul F. Loconto, First Justice, Fitchburg District Court
Steven McKeown, Assistant Chief Probation Officer
Senator Robert A. Antonioni
Representative Brian Knuuttila
Representative Emile J. Goguen

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Picture 1



Documents Drying on the Floor of the Judge's Chambers Floor

Picture 2



Wallpaper Covering Gypsum Wallboard

Picture 3



**Moisture Meter Producing A Saturated Measurement
Approximately 4-inches Above Floor in Basement**